



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

646.3015
Job Sheet 170451



Part No: 646.3015

Job Qty: 12 ea

Part Name: Blade



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/16/18

Job Tracking No:

Due Date: 1/24/18

Created By: Linda Lacelle

Type: SOLD

Description:

Note: DWG REV N/C SHEET 12 IPP REV:A NEW ISSUE 12/11/09 JFS VERIFY BY: JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	12 Ea		1/24/18	0.00	0.00	Start Up Machining-1		manl 18/02/16
100	Bandsaw	12 pcs		1/24/18	0.00	0.19	Bandsaw1		"
110	CNC Vertical Machining	12 pcs		1/24/18	0.18	15.06	HAAS1-1		"
120	QC	12 pcs		1/24/18	0.00	0.00	QC2 Machining-1		
130	QC	12 pcs		1/24/18	0.00	0.00	QC8 Machining-1		AK 18/02/17
140	Outsource	12 pcs		1/24/18	0.00	0.00	Outsource1	39181	AK MAR 16 2018
150	Packaging	12 pcs		1/24/18	0.00	0.00	Packaging2		AK 18/03/20
155	QC	12 pcs		1/24/18	0.00	0.00	QC5		38
160	SprayPaint	12 pcs		1/24/18	0.00	0.39	Spray Paint		AK MAR 21 2018
170	QC	12 pcs		1/24/18	0.00	0.00	QC14		38
180	Packaging	12 pcs		1/24/18	0.00	0.00	Packaging3-1	CK102	AK MAR 28 2018
190	QC21-SA	12 Ea		1/24/18	0.00	0.00	QC21		

Part Op 100 - Cut Blank at 6.580"

Descriptions: 110 - 1-Machine per folio FB150

140 - HEAT TREAT AS PER DWG, SEE NOTE #3

160 - PRIME AS PER DWG, SEE NOTE #4 13877

180 - ***IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV***

DAS
21
9-80

MAR 28 2018

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	MSTEEL-A2-B0.500X1.250	7	79	0	0

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____		DISPOSITION		AGAINST DEPARTMENT/PROCESS	
Part No. _____		Rework ☐	Skid-tube ☐	Cross tube ☐	Water lot ☐
NCR No. _____		Scrap ☐	Machining ☐		
		Use-as-is ☐	Thermoforming ☐		
		Suspected Unapproved ☐	Large Fab ☐		
Date : _____	Step #: _____	QTY Effect _____			
Description Work Order Deviation					
Root Cause					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defec ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete, ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐		
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER : _____			

1270 Aberdeen Street
Hawkebury, ON K6A 1K7
CANADA
TEL: 1 813 632-8200
Email: sales@dartaero.com
www.dartaerospace.com



Container No: 8043336
Part: 646.3015
Job No: 170451
Serial No/Batch: 8043336
Revision: 646.3000
Inspector:

Date: 02/18/18

Part Specifications					
Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Blade	0.375inches $\pm$ 0.005	0.380 0.370		
2	Blade	0.177inches $\begin{matrix} + 0.005 \\ - 0.000 \end{matrix}$	0.182 0.177	Diameter	
3	Blade	0.940inches $\pm$ 0.010	0.950 0.930		
4	Blade	0.524inches $\pm$ 0.005	0.529 0.519		
5	Blade	0.240inches $\pm$ 0.020	0.260 0.220		
6	Blade	0.125inches $\pm$ 0.005	0.130 0.120	Radius	
7	Blade	45.000Degrees $\pm$ 0.500	45.500 44.500		
8	Blade	0.524inches $\pm$ 0.005	0.529 0.519		
9	Blade	0.690inches $\pm$ 0.002	0.692 0.688		
10	Blade	1.250inches $\pm$ 0.002	1.252 1.248		
11	Blade	4.684inches $\pm$ 0.005	4.689 4.679		
12	Blade	6.450inches $\pm$ 0.010	6.460 6.440		
13	Blade	0.325inches $\pm$ 0.005	0.330 0.320		
14	Blade	30.000Degrees $\pm$ 0.500	30.500 29.500		

Plex 1/16/18 1:27 PM dart.lacelle.linda

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS					
Part No. _____		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
NCR No. _____		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Large Fab ☐	Composite ☐	Supplier ☐			

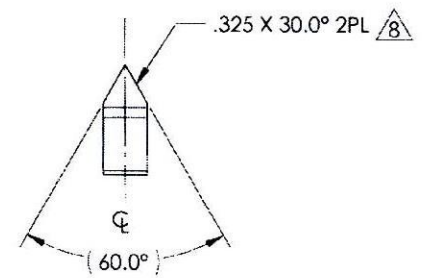
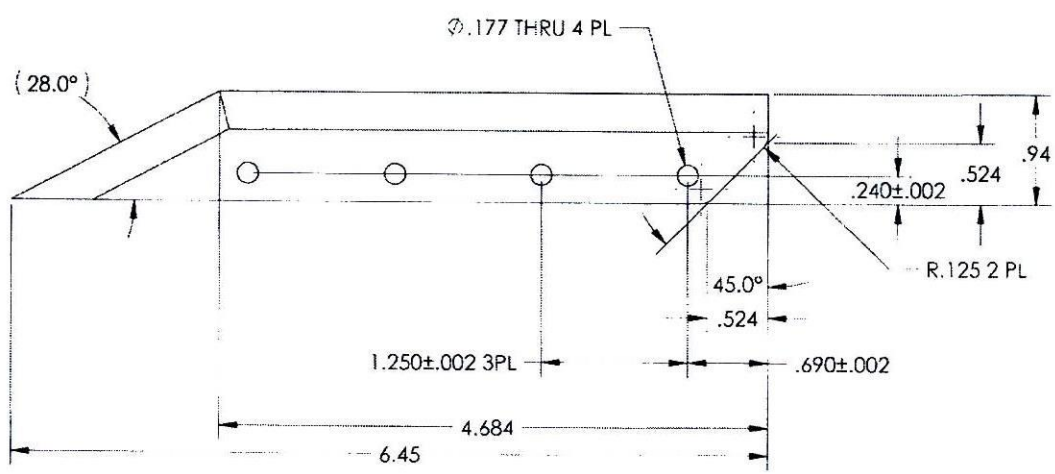
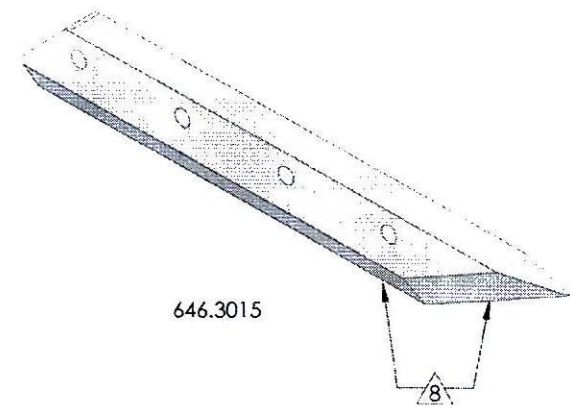
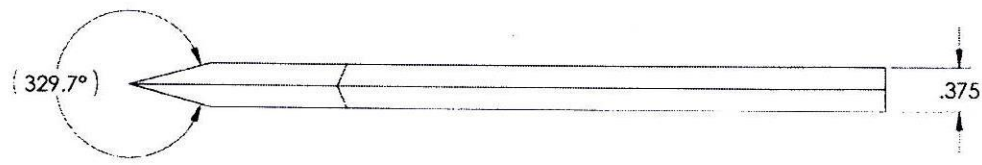
Date :	Step #:	QTY Effective :	MRB (QSI042) Approval
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Description Work Order Deviation	Disposition	Completed By
		Lead hand / Supervisor Approval Verification
		QC / QA Coordinator Approval

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

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REV	DESCRIPTION	DATE	APPROVED



DESIGN: GFE	DATE: 07/24/00	APICAL INDUSTRIES	
DRAWN: J. J. J.	DATE: 07/24/00	2608 TEMPLE HEIGHTS DR.	
BY: J. J. J.	DATE: 07/24/00	OCEANSIDE, CA. 92056-3512 (760) 724-5300	
APPROVED: J. J. J.	DATE: 07/24/00	LOWER CUTTER ASSY	
CONTRACT NO.			
QUANTITY: 1000			
DATE: 07/24/00			
BY: J. J. J.			
DATE: 07/24/00			
BY: J. J. J.			
DATE: 07/24/00			



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO039181

Supplier: MEI001-VC
Metcor Inc.
560 Boul. Arthur Sauve
Saint-Eustache
QC
J7R 5A8 Canada
Phone: 450 473 1884
Fax: 450 491 5498

PO No: PO039181
PO Date: 3/2/18
Due Date: 3/20/18
Purchase Order Revision:
Revision Date:
Ship-To Contact: Lacelle, Linda
Phone: llacelle@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	171547	D2741	Replacement Blade Issue P/O: HARDEN MATERIAL: ULTIMATE TENSILE STRENGTH = 152 KSI MINIMUM YIELD TENSILE STENGHT = 141 KSI (34-40 HRC) SAND BLAST PART AFTER HEAT TREAT NOTE: DO NOT OIL AFTER SANDBLAST NOTE: DETAIL C OF C REQUIRED	Firmed	3/27/18	38 pcs	0 pcs	38 pcs	\$18.0152632/pcs	\$684.58
Line Item Note part made from 4130 bar										
2		646.3013	Blade ISSUE P/O: FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As Per Dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57

Items										
Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
3		646.3014	Blade FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As Per Dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs ✓	0 pcs 11x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
4	170451	646.3015	Blade FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS As per dwg 646.3000 PART ARE MADE FROM AISI A2 TOOL STEEL DETAIL OF C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
5	170459	646.3314	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
6	170460	646.3315	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57
7		646.3316	Blade HEAT TREAT AS PER DWG 646.3300 FINISH: HEAT TREAT TO 58-62 RC ROCKWELL HARDNESS PART ARE MADE FROM AISI A2 TOOL STEEL PLEASE NOTE: DETAIL C OF C REQUIRED	Firmed	3/20/18	12 pcs ✓	0 pcs 12x	12 pcs AT 18/03/20	\$2.2977/pcs	\$27.57

METCOR INC.

560 BOUL. ARTHUR-SAUVÉ, ST-EUSTACHE, QC, J7R 5A8

Tél.: 450-473-1884

Télécopieur / Fax administration: 450-491-5498

Télécopieur / Fax production: 450 491-6454

Certificat de Conformité Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
325893	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

1

COMMANDE DU CLIENT customer po	CLASSIFICATION PIECE part classification	MATÉRIEL material	MAÎTRE D'OEUVRE prime contractor	PROGRAM
PO039181	N/A	A2		
<u>SPÉCIFICATIONS DU PROCÉDÉ</u> processing specifications				
VAC HARDEN				
HARDEN AND TEMPER				
EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results	
HARDNESS	58 - 62 HRC	8	58 - 61 HRC	

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ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

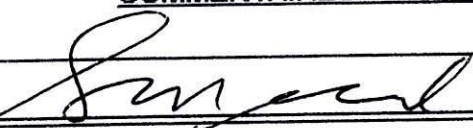
QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
136	45	646.3013 (12) 646.3013 DWG 646.3000 (12) 646.3014 DWG 646.3000 (12) 646.3015 JOB 170451 DWG 646.3000 (12) 646.3314 JOB 170459 DWG 646.3300 (12) 646.3315 JOB 170460 DWG 646.3300 (12) 646.3316 DWG 646.3300 (44) D5504-1 171646 (20) D5557-1 171467 2= 1BC + 1 VALISE

APPROUVÉ

16/3/18

COMMENTAIRES / comments

APPROUVÉ par / Approved by:



DATE: 2018-03-12